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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/002,574

11/14/2001

David E. Branson

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7590 04/30/2007  
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EXAMINER

LOVELL, LEAH S

ART UNIT

PAPER NUMBER

2885

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/30/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/002,574

Applicant(s)

BRANSON ET AL.

Examiner

Leah S. Lovell

Art Unit

2885

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 21 February 2007 have been fully considered but they are not persuasive. See below for rejections.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable by Zou et al. (US 6,186,649).

Regarding claim 1, Zou discloses an illumination system for illuminating a scan region on an object, comprising:

a hollow reflector [404] having an interior reflective surface [column 10, lines 27-28] and an exit aperture[408];

a light source [402] positioned within said hollow reflector [figure 12], said light source producing a plurality of light rays, some of the light rays produced by said light source being reflected by the interior reflective surface of said hollow reflector before passing through the exit aperture [column 10, lines 28-31];

a first reflector [420] positioned adjacent a first side of the exit aperture of said hollow reflector [figure 12]; and

a second reflector [422] positioned adjacent a second side of the exit aperture of said hollow reflector [figure 12], said first and second reflectors being positioned in non-parallel [figure 12], spaced apart relation to one another [figure 12], said first and second reflectors at least partially collimating light passing through the exit aperture of said hollow reflector to form a collimated beam [column 10, line 65-67].

Figure 12 does not disclose the first and second reflector within the first and second side of the exit aperture, respectively. However, Figure 10 of Zou discloses an optical structure (like that of figure 12) resting within the first and second sides of the exit aperture. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the width [426] be just less than that of the width of the opening [414] such that the optical structure [416] rests between the first and second sides of the exit aperture. One would be motivated to do so to eliminate light lost between the output of the hollow reflector and the input of the optical structure allowing for a more efficient system.

In regard to claim 2, Zou discloses said hollow reflector [404] comprising a body having a generally cylindrically shaped interior wall that defines the interior reflective surface [figures 11 and 12] and wherein the exit aperture comprises a generally elongate axial opening in the interior wall of said body [figure 11].

Regarding claim 3, Zou discloses the interior reflective surface of said hollow reflector comprising a diffusing reflecting surface [column 5, lines 47-50].

In regard to claim 4, Zou discloses the interior reflective surface of said hollow reflector is coated with a diffusing reflecting material [figure 3].

Regarding claim 5, Zou discloses said light source comprising a fluorescent lamp [column 5, line 29].

In regard to claim 6, Zou discloses said first reflector comprises a generally planar reflective surface [column 10, lines 43-45].

Regarding claim 7, Zou discloses said second reflector comprises a generally planar reflective surface [column 10, lines 43-45].

In regard to claim 8, Zou discloses said first and second reflectors comprise specular reflecting surfaces [column 10, lines 61-64].

In regard to claim 9, Zou discloses said first and second reflectors are coated with a specular reflecting material [column 10, lines 61-64].

Regarding claim 10, Zou discloses an illumination system for illuminating a scan region on an object, comprising:

- a body [404] having an interior wall defining a generally cylindrically shaped interior reflective surface [figures 11 and 12], the interior wall of said body also defining a generally elongate axial opening [408] therein located at a first radial position on the interior wall of said body [figure 12];

- a light source [402] positioned within the generally cylindrically shaped interior reflective surface defined by said body [figure 12];

- a first reflector [420] positioned adjacent a first side of the elongate axial opening defined by the interior wall of said body [figure 12]; and

- a second reflector [422] positioned adjacent a second side of the elongate axial opening defined by the interior wall of said body [figure 12], said first and second reflectors being positioned in non-parallel [figure 12],

spaced apart relation to one another [figure 12], said first and second reflectors are at least partially collimating light passing through the exit aperture of said hollow reflector to form a collimated beam [column 10, lines 65-67].

Figure 12 does not disclose the first and second reflector within the first and second side of the exit aperture, respectively. However, Figure 10 of Zou discloses an optical structure (like that of figure 12) resting within the first and second sides of the exit aperture. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the width [426] be just less than that of the width of the opening [414] such that the optical structure [416] rests between the first and second sides of the exit aperture. One would be motivated to do so to eliminate light lost between the output of the hollow reflector and the input of the optical structure allowing for a more efficient system.

Regarding claim 11, Zou discloses said light source comprising a fluorescent lamp [column 5, line 29].

In regard to claim 12, Zou discloses said first reflector comprises a generally planar reflective surface [column 10, lines 43-45].

Regarding claim 13, Zou discloses said second reflector comprises a generally planar reflective surface [column 10, lines 43-45].

In regard to claim 14, Zou discloses the interior reflective surface of said body comprising a diffusing reflecting surface [column 5, lines 47-50].

Regarding claim 15, Zou discloses the interior reflective surface of said body is coated with a diffusing reflecting material [figure 3].

In regard to claim 16, Zou discloses said first and second reflectors comprise specular reflecting surfaces [column 10, lines 61-64].

In regard to claim 17, Zou discloses said first and second reflectors are coated with a specular reflecting material [column 10, lines 61-64].

Regarding claim 18, Zou discloses an illumination system for illuminating a scan region on an object, comprising:

hollow reflector [404] means for defining an interior reflecting surface [figure 12 or 106] and an exit aperture [408];

light source [402] means positioned within said hollow reflector means for producing a plurality of light rays [figure 12]; and

collimating reflector means [416] positioned adjacent the exit aperture defined by said hollow reflector means for at least partially collimating light exiting the exit aperture defined by said hollow reflector means to form a collimated beam [column 10, lines 65-67].

Figure 12 does not disclose the first and second reflector within the first and second side of the exit aperture, respectively. However, Figure 10 of Zou discloses an optical structure (like that of figure 12) resting within the first and second sides of the exit aperture. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the width [426] be just less than that of the width of the opening [414] such that the optical structure [416] rests between the first and second sides of the exit aperture. One would be motivated to do so to eliminate light lost between the output of the hollow reflector and the input of the optical structure allowing for a more efficient system.

In regard to claim 19, Zou discloses said collimating reflector [416] means comprises first reflecting means [420] and second reflecting means [422] positioned in generally non-parallel, spaced-apart relation [figure 12].

Regarding claim 20, Zou discloses a method for illuminating a scan region on an object, comprising:

- providing a hollow reflector [404] having an interior reflecting surface [figure 12 or 106] and an exit aperture [408];

- providing a collimating reflector [416] adjacent the exit aperture of the hollow reflector [figure 12]; and

- directing a plurality of light rays onto the interior reflecting surface of the hollow reflector [column 10, lines 28-31], the interior reflecting surface reflecting some of the light rays through the exit aperture in the hollow reflector [column 10, lines 30-34], the collimating reflector at least partially collimating light exiting the exit aperture in the hollow reflector to form a collimated beam [column 10, line 65-67].

Figure 12 does not disclose the first and second reflector within the first and second side of the exit aperture, respectively. However, Figure 10 of Zou discloses an optical structure (like that of figure 12) resting within the first and second sides of the exit aperture. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the width [426] be just less than that of the width of the opening [414] such that the optical structure [416] rests between the first and second sides of the exit aperture. One would be motivated to do so to eliminate light lost between the output of



the hollow reflector and the input of the optical structure allowing for a more efficient system.

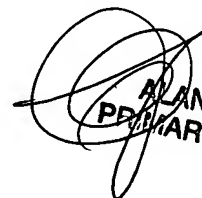
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leah S. Lovell whose telephone number is (571) 272-2719. The examiner can normally be reached on Monday through Friday 7:45 a.m. until 4:15 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leah Lovell  
Examiner  
19 April 2007

  
ALAN CARIASO  
PRIMARY EXAMINER